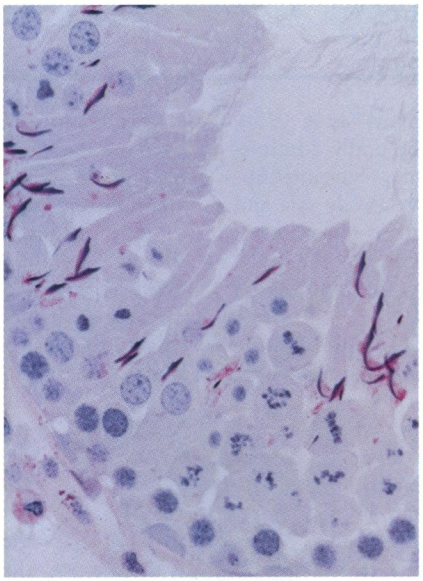
in order and stop defining success only in terms of quarterly earnings, we can play a major leadership role."

Summarizing the conference, Hutton concluded, "Business doesn't just reflect the values of society, business helps shape those values. Advertising and marketing should proclaim that the environment is a value that the business community cherishes as much as the bottom line."



Bob Chapin

Sperm shortage. Falling sperm counts in humans and animals may be due to effect of environmental chemicals on spermatogenesis.

Sperm: Down for the Count

Falling sperm counts may signal rising male infertility, say researchers in a report that suggest a link between increases in male reproductive abnormalities and increased exposure to environmental estrogens.

According to Richard Sharpe of the British Medical Research Council and Nihls Skakkebaek of Copenhagen University, sperm counts among men worldwide have decreased by 50% in the last 30 to 50 years, while the incidence of disorders of the male reproductive tract, including testicular cancer, has more than doubled. Germ-cell-derived testicular cancer is the most common malignancy of young males.

The report suggests these disorders are a result of fetal exposure to environmental estrogens, based on the similar occurrence of such abnormalities and decrease in sperm levels in the sons of pregnant women exposed to the synthetic estrogen diethylstilbestrol (DES) between 1945 and 1971 and studies which have induced similar results in animals by brief exposure to DES during pregnancy.

According to the report, which cites another study, "humans now live in an environment that can be viewed as a virtual sea of estrogens." Women now take in estrogens from a wide array of sources and consequently pass them to their developing sons, with the result being an increase in male infertility.

Changes in diet have also been implicated. Increases in body fat, which can convert certain steroids to estrogens, thereby increasing their bioavailability, and the ingestion of phytoestrogens in plants and fungi may contribute to the estrogen burden. Estrogen-rich soya, whose consumption as a substitute for meat protein has increased dramatically in the last 20 years, may also be a source.

As if that weren't enough, environmental contamination over the last 50 years has resulted in human exposure to chemicals that are resistant to biodegradation, persistent in the food chain, and accumulate in human and animal tissues over time. Some of these chemicals, such as PCBs and DDT, are weakly estrogenic and have been associated with reproductive abnormalities in animals.

Nonestrogenic chemicals, however, may also play a role in the drop in sperm count, testicular cancer, and other male reproductive disorders. Such chemicals, which include some pesticides, plasticizers, food colorings, solvents, metals, dioxins, and alcohol, have been shown to disrupt testicular development and function in exposures involving experimental and farm animals and in occupational settings. All of the mechanisms by which these chemicals affect male fertility are not known, but scientists believe some may directly impair testicular function, whereas others may interfere with brain control of sperm production and other hormonal pathways.

It is clear that further discussion and research into the effects, including the alarming decrease in sperm counts, of both estrogenic and nonestrogenic chemicals on male reproductive development is warranted considering the widespread increase and impact of male infertility.

Rio Back Home

Technology "has magnified our ability to impact the earth," said Vice President Al Gore at a national follow-up conference to last year's Earth Summit in Rio de Janeiro. Gore advised that "it is in our nation's best interest," to explore and implement new technologies that are both economically and environmentally sound.

Kentucky Governor Brereton Jones hosted "From Rio to the Capitols: State Strategies for Sustainable Development," which brought together more than 200 representatives of all levels of government, business and industry, academia, and community action groups to discuss ways in which long-term economic development projects can be implemented without negatively affecting the environment or the health of future generations.

At the conference, held May 25–28, an audience of more than 1500 people heard ideas and initiatives focusing on solutions to the environmental problems raised by expansion of industry and innovations in technology. Activities during the conference, including topic panel discussions and regional forums, were designed to enable participants to hear case studies of successful sustainable development projects and garner ideas to put into practice in their own communities.

Reports from regional forums representing 49 of 50 states, released during the conference, included recommendations for long-term sustainable development planning, the creation of state sustainable development advisory councils, community-based actions, and increased public education about the importance of sustainable development.

Members of the national steering committee for the conference included governmental organizations such as the U.S. Conference of Mayors, the National Governors' Association, and the National Conference of State Legislatures; industry representatives such as Procter and Gamble, CSX, and UPS; citizens' groups such as the Citizens Network for Sustainable Development and the United Nations Association; and individuals such as John Sawhill, president of the Nature Conservancy, Chief Oren Lyons of the Iriquois Confederacy, and Thomas Lovejoy, scientific advisor to Interior Secretary Bruce Babbitt.